

What is claimed is:

1. A method for controlling temperatures in a semiconductor manufacturing apparatus including a reaction chamber and a plurality of heating sources, comprising the steps of:

determining a set of power ratios to be fed to the heating sources for each of two or more selected temperatures, and

controlling a given temperature by performing power control on the heating sources based on at least one set of power ratios obtained in the determining step.

2. The method of claim 1, wherein the selected temperatures are discontinuous to have a predetermined temperature interval between every two selected temperatures.

3. The method of claim 1, wherein the power control is carried out by using power ratios for the heating sources corresponding to the given temperature, the power ratios corresponding to the given temperature being determined based on one or two sets of power ratios determined with respect to one or two selected temperatures closest to the given temperature.

4. The method of claim 3, wherein the power ratios corresponding to the given temperature are determined by

interpolating the power ratios of the two sets based on the temperature differences between the given temperature and the two selected temperatures.

5 5. The method of claim 1, wherein said temperature controlling step is carried out by using a P(proportional), an I(integral) and a D(derivative) operation outputs and power ratios corresponding to the given temperature, the power ratios corresponding to the given temperature being
10 determined based on one or two sets of power ratios determined in the determining step.

15 6. The method of claim 5, wherein a controlled power output for a heating source is determined by applying a first power ratio to the I operation output and a second power ratio to the P and the D operation outputs.

20 7. The method of claim 5, wherein a controlled power output for a heating source is determined by multiplying a power ratio only by the I operation output.

25 8. The method of claim 5, wherein a controlled power output for a heating source is determined by multiplying the P, the D and the I operation outputs by a power ratio during processing a wafer and is determined by multiplying the power ratio only by the I operation output when there exists

an external disturbance in the reaction chamber caused by loading a wafer thereinto.

5 9. The method of claim 1, wherein said at least one set of power ratios is selected by using a target temperature.

10 10. The method of claim 1, wherein said at least one set of power ratios is selected by using a target temperature when there exists an external disturbance in the reaction chamber caused by loading a wafer thereinto and is selected by using a measured temperature during processing a wafer.

15 11. The method of claim 1, wherein the reaction chamber includes;
a rotatable susceptor for mounting a wafer thereon;
a ring die fixedly installed around the peripheral portion of the susceptor; and
temperature detection devices, for measuring temperatures of the reaction chamber, installed near a
20 center of the wafer and close to a peripheral portion of the wafer.

25 12. A method for manufacturing a semiconductor device by using the method of claim 1.

13. An apparatus for controlling temperatures by using the method of claim 1.

14. An apparatus for manufacturing a semiconductor device by using the method of claim 1.

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